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A Study of the Scholastic Performance
of Freshman Women at the
State University of Iowa
1927-1928

by

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CHAPTER I

STATEMENT OF THE PROBLEM

A. RELATED STUDIES

Several studies of scholastic performance have been made which have some points in common with the present investigation. Among these are the theses of Remmers, Lemon, and Robb. Unlike the works cited, this study considers the scholarship of freshman women as a class.

The study by Remmers (4) deals with the freshman men at Purdue University who made a low score on mental tests or who failed in their university work. He found that for these students the judgment of high school teachers and principals, as to the general capacity of the students, did not agree with test findings at the university. Out of eighty-six such judgments, fifty-two students were rated as able to do successful college work, while thirty-four were considered doubtful or negative. Bi-serial r for teachers' judgments and high school grades is $.729 \pm .054$. The correlation for high school grades and freshman university grades runs about .40. The clinical findings of the investigation indicate that the order of significant factors in student maladjustment when grouped under nine general headings, is as follows: intellectual fitness, emotional adjustment, motivation and interests, educational background, study habits and methods, physical fitness, environmental factors, motor fitness, teaching methods and content.

Lemon's (3) study included both men and women, and considered only the freshmen in the lowest decile of the Iowa Qualifying Examination. He found that over a five-year period twelve per cent of these students had received degrees from the university under the usual conditions of non-guidance. Fifty-seven per cent were eliminated by the end of the first year, and seventy-two per cent by the end of the second year.

Robb (5) made a comparative study of the scores obtained by giving the Iowa Qualifying Examination to seniors in the high school and again in the university. For over three hundred records, extending over a period of three years, he found correlations of .48 to .63 for the various tests used and grade point average in the university, and a correlation of .76 to .91 between the scores made on the tests by the same seniors in high school and in the university.

A different approach to the freshman problem is presented by Clark (1) in an article explaining the admission policy of Northwestern University. He regards the standing of the students in the graduating classes of one hundred or over as especially valuable as an indication of the quality of work which will be done in college, and stated that students from private schools get lower college grades than those from large public high schools. Students from unaccredited schools may be admitted by examination. Even though such students fail on part of the tests, they are sometimes admitted if their high school record indicated exceptionally superior work. In regard to outside work, he considers that the amount of work which will almost certainly cause a student's grades to suffer is between twenty-five and thirty hours a week.

As noted above, the present study deals only with freshman women. It considers some of the points mentioned above and others suggested by the situation at the University of Iowa. The statement of the problem, and the type of data considered in the solution, and a description and summary of the data follow.

B. THE PROBLEM

This study was undertaken to discover the relation of certain factors to the scholastic performance of freshman women at the State University of Iowa during the year 1927-1928. The factors selected for investigation were in each case of such a nature as to lend themselves to statistical treatment.

C. THE DATA

The data included secondary school preparation, university records, individual contributions by the students, and facts concerning self-support.

1. Secondary School Preparation

In an attempt to evaluate the preparation of the group for college work, both the type of secondary school and the record of the individual in the school were considered. The type of high school, its size, and the method by which it was approved or accredited were studied. The record of the student was examined to determine how successfully she had completed her preparatory work, and her high school principal was asked to give his judgment regarding her ability to do college work. When the student had taken the Iowa Qualifying Examination in high school, this was used.

2. University Records

University records used were the percentile rank in the Iowa Qualifying Examination which is given to all freshmen, and the first and second semester grades. The qualifying examination used this year consisted of the following four tests: Iowa Comprehensive Test; Iowa High School Content Examination; and two of the Iowa Placement Examinations, English Training and Mathematics Aptitude. This series gives a composite percentile score on the freshman's mental-educational ability.

3. Student Contributions

Additional information was secured directly from the students.

a. A time budget

The freshman women were asked to keep a time budget for one week recording to the nearest quarter hour the time spent each day in various specific ways. The items included school work, work for self-support, recreation, and activities, as well as a report of where most of the student's studying was done.

b. Report on type of residence and roommate

Another report gave the type of rooming place, the number of roommates, and facts regarding membership in a sorority. The types of rooming places were the University dormitory, a sorority house, an approved rooming house, the student's home, or a home where the girl worked for self-support.

c. Reaction to university life

The student's reaction to university life was secured by asking her to check one of five possible statements regarding each of the following: the difficulty of her work, pressure for time, worry, health, and enjoyment or dislike of university life.

4. Self-support

Special attention was given to the study of girls who were working for self-support. Their time budget reports were supplemented by the records in the office of the Dean of Women, and by telephone and personal interviews.

5. Summary of Data

The data secured are summarized in Table 1.

TABLE 1

DATA SECURED

Items	Number of Cases
1. Freshman women:	
Having some university credit but less than 24 semester hours	32
Having no university credit	305
Total	337
2. Secondary schools represented	175
3. Types of secondary schools:	
City or town public high schools	136
Consolidated high school	26
Parochial schools	7
Private schools	5
University High School	1
Total	175
4. Secondary schools accredited:	
By regional educational associations	68
By state or university	105
Not accredited	1
No information	1
Total	175

5. High school records:		
Scholastic average		321
Quartile in senior class:		
Highest	145	
High average	97	
Low average	40	
Lowest	12	
Total		294
Principal's judgment as to success in college:		
Yes	268	
Doubtful	14	
No	12	
Total		294
Iowa Qualifying Examination, percentile scores		12
6. University records:		
Iowa Qualifying Examination, percentile scores		328
First semester grades		323
Second semester grades		279
7. Time budget:		
Complete records		176
Dormitory	84	
Rooming house	19	
At home	41	
Where working	16	
Sorority house	16	
8. Place of residence:		
Dormitory	101	
Sorority house	40	
Approved rooming house	68	
At home	92	
In home where work for self-support	36	
Total		337
9. Sorority members:		
At sorority house	40	
In the dormitory	39	
At home	26	
In approved rooming house	21	
In home where works for self-support	3	
Total		129
10. Reaction to university life:		
Non-sorority members	193	
Sorority members	127	
Total		320
11. Working for self-support:		
Time budget	46	
No time budget	24	
Total		70

CHAPTER II

THE FRESHMAN WOMEN AND THEIR SECONDARY SCHOOL PREPARATION

A. DESCRIPTION OF FRESHMAN WOMEN

1. Number and Credit

The group of 337 freshman women chosen for this study includes 305 who are entering college for the first time and 32 who have had some college work but less than twenty-four semester hours. All women who are taking freshman work are included. Unclassified students who have less than twenty-four hours of credit, but who are not following the courses prescribed for freshmen, are not included.

2. Advanced Standing

The students with advanced standing do more than their proportionate share of work for self-support and are older than the class average. They are irregular, but apparently function normally.

3. Six Negroes

Six of the class are negroes. The youngest is sixteen. She and two others finished high school last year, two have been out a year. The oldest, who is taking pharmacy, is thirty-three and has been out fourteen years.

4. Age and College Entrance

The average class age is 18.4 years; the range is sixteen to thirty-five. Two-thirds of the class entered college immediately upon completing their high school work, only two and one-half per cent had been out of school five years or more.

B. SUMMARY OF SECONDARY SCHOOL PREPARATION

The freshman women of 1927-1928 at Iowa gathered together from both coasts of the continent, and from the northern tier of states to the Canal Zone. One-fifth of the 175 localities represented lie outside of the state. The original en-

vironment is as varied as New York City and a consolidated school district on a rural delivery route. Of the 175 places of residence, twenty-five are cities of 15,000 or over; at the other extreme are twenty-eight villages and consolidated districts having a population of less than five hundred.

There are 186 schools represented, all but two of which are accredited, more than one third of the number by sectional associations. The list includes city and town public high schools, consolidated schools, parochial schools, private schools, and the University High School.

The 280 students for whom complete records are available made an average scholastic record of $87.7 \pm 4.8^*$, with a range of 74 to 97. The high school principals state their belief that all but twenty-five of them (9 per cent) will succeed in college work. The correlation between the principals' judgments and the high school average, using the Bi-Serial r method, is .47 for the positive and doubtful series, and .76 for the positive and negative series. The judgments were modified by knowledge of environmental factors and by the belief that perseverance and interest compensate for lack of brilliancy.

The reliability of the Iowa Qualifying Examination is shown by the high correlation ($.92 \pm .03$) that exists between the scores made in high school and in the University. The reliability gives us a key to probable success in the University which could be utilized by high school advisors in their work of educational guidance.

*A. M. and S. D.

CHAPTER III

REACTION TO UNIVERSITY LIFE

During the last week of November, after about two months of school, the Dean of Women secured the following reaction to university life from the freshman women during the freshman lecture period.

A. THE REACTIONS SECURED

Each student was provided with a sheet containing six aspects of university life and requested to check the one of five statements which most nearly described her reaction. The class was given five minutes to make the responses.

Since with five choices the number of cases for some of the choices is very small, the results have been combined to form three choices in each case. The responses are shown in Table 2.

TABLE 2
REACTION TO SIX ASPECTS OF UNIVERSITY LIFE

Aspect of university life	Cases	Per cent of 320
School work		
Rather or very easy	19	5.9
Not difficult	81	25.3
Rather or very difficult	220	68.8
Time pressure		
Rarely or never hurried	19	5.9
Just enough time	61	19.1
Often or always hurried	240	75.0
Enjoy university life		
All or most of it	238	74.3
Some of it most of the time	69	21.5
Very little or none of it	13	4.0
Dislike university life		
Very little or none of it	271	84.6
Some of it most of the time	42	13.1
Most or all of it	7	2.1
Worry		
Rarely or never	49	15.2
Occasionally	156	48.7
Often or all the time	115	35.8
Health		
Excellent	173	54.0
Good	127	39.7
Poor: ill often or always	20	6.2

B. FREQUENCY OF RESPONSES

The responses to each aspect of university life are arranged in Table 3 according to frequency. This makes three groups: highest frequency, middle frequency, and lowest frequency. The rank in frequency follows the number of cases.

TABLE 3
FREQUENCY OF RESPONSES ON REACTION TEST

	Cases	Rank	Per cent of 320
1. Most Frequent Reaction			
Dislike: little or none of university life	271	1	84.6
Time: often or always hurried	240	2	75.0
Enjoy: all or most of university life	238	3	74.3
School work: rather or very difficult	220	4	68.8
Health: excellent	173	5	54.0
Worry: occasionally	157	6	48.0
2. Reaction Ranking Second in Frequency			
Health: good	127	7	39.7
Worry: often or all the time	114	8	35.8
School work: not difficult	81	9	25.3
Enjoy: some, most of the time	69	10	21.5
Time: just enough	61	11	19.1
Dislike: some, most of the time	42	12	13.1
3. Reaction Ranking Third in Frequency			
Worry: rarely or never	49	13	15.2
Health: often or always ill	20	14	6.2
School work: rather or very easy	19	15	5.9
Time: rarely or never hurried	19	16	5.9
Enjoy: little or none of university life	13	17	4.0
Dislikes: most or all of it	7	18	2.1

C. REACTION PATTERNS

A student who checked the first choice of each aspect on the list of reactions would present a pattern of complete adjustment to university life. Such a student would find her school work easy, would never be pressed for time or worried, would dislike none of her university experience, would enjoy all of it, and would feel that she was in excellent health.

The general trend of the reactions is to group poor health, excessive worry, pressure for time, and difficult school work at one extreme of the reaction scale with varying degrees of active dislike of the situation and some enjoyment of it. At

the other extreme the opposite reactions are coupled with little dislike of university life and enjoyment of all or most of it.

D. EXAMINATION OF SOME EXCEPTIONAL CASES

The least frequent reactions are little or no enjoyment of university life and dislike of all or most of it. The larger group of poorly adjusted students consists of thirteen students who enjoy little or none of their university life. A smaller group of seven dislikes all or most of it. The two lists contain only sixteen cases as four are duplicates. These cases were examined in detail to discover the reason for their dissatisfaction. Following this, three groups were considered which show superior adjustment.

1. Inferior Adjustment

a. Students Who Enjoy Little or None of University Life

Seven case studies follow which indicate some of the causes of poor adjustment. The qualifying examination score is a percentile rank based on the records of the freshman class, including both men and women, approximately one thousand students.

(1) The Case Studies

<i>Case Number 18</i>	
Age 20	Qualifying Examination 22
Registration	Grade Point Average
First semester: 16 hours	1.56
Second semester: 16 hours	1.56
Dislikes all of university life.	
Graduate of Lincoln, Nebraska, high school. Working in a home for support, 28 hours a week.	
Undertaking more than she should: full schedule, low qualifying examination, outside work.	

<i>Case Number 23</i>	
Age 19	Qualifying Examination 39
Registration	Grade Point Average
First semester: 16 hours	2.00
Second semester: 16 hours	2.25
Enjoys very little of university life.	
Graduate of small parochial school. Living at home. Studying hard and missing all the fun of going to college.	

Case Number 166

Age 18	Qualifying Examination 62
Registration	Grade Point Average
First semester: 12 hours	1.08
Second semester: 12 hours	.75
Dislikes all of her university life.	
Graduate of a small high school in West Virginia.	
Working 10 hours a week at house work. Living in a rooming house, without a roommate.	

Case Number 178

Age 18	Qualifying Examination 89
Registration	Grade Point Average
First semester: 12 hours	2.67
Second semester: 16 hours	2.81
Enjoys very little of university life.	
Graduate of consolidated high school. Needed to be earning part of her way, but had no work. Health poor. She lived at a rooming house without a roommate at the time she gave this reaction. She asked to be allowed to room in the dormitory the second semester. Here she did not show herself friendly. The head of her table found her difficult to draw into the conversation, the girls at the table described her as "sneering," "critical," and "just odd." The opinion of her associates is that her unhappiness is a matter of temperament.	

Case Number 189

Age 24	Qualifying Examination 33
Registration	Grade Point Average
First semester: 16 hours	0.31
Second semester: not registered	
Dislikes most of her university life.	
Graduate of small high school previous year. A graduate nurse who came to the university intending to study medicine. She lived at the dormitory where she gave little time to recreation. Studied hard, but was often reported delinquent. Discouraged and disappointed.	

Case Number 196

Age 17	Qualifying Examination 83
Registration	Grade Point Average
First semester: 16 hours	2.50
Second semester: 16 hours	3.34
Enjoys very little of university life.	
Valedictorian in small high school. Lives in a home where she works for self-support, also clerks four hours on Saturday. Total working time 35.5 hours per week. Too much work and too little play.	

Case Number 313

Age 17	Qualifying Examination 61
Registration	Grade Point Average
First semester: 16 hours	1.75
Second semester: 12 hours	2.50

Dislikes most of university life.

Graduate of high school of about 500 where her average was 85. On her time budget she reports over three hours of study on each hour of class work. Sleeping less than five hours a day. Very little time for recreation. Living in a sorority house. Making a desperate effort to make better grades than she did in high school so that she can be initiated.

(2) Summary and Conclusion on Little Enjoyment of University Life

An examination of the thirteen who enjoy little or none of university life reveals that more often than not the ability of the group is only average or even quite below average. Five of the younger ones have ability above the average, but none is in the highest ten per cent.

Four were registered for 16 hours all year. The rest carried a reduced schedule all or half the year.

Only five report outside work. Seven did at least average school work all year. Two others reached the average the second semester. The other four did less than average work both semesters.

The fact of isolation, a lack of participation in the common university life, seems rather clear in each case. In some cases this was due to overwork, in some to the fact that the freshman lived at home, or if she lived in a group, was not herself temperamentally inclined to join in the common life. Discouragement, homesickness, and financial difficulties were operative in some cases. Other students have shown better adjustment under like conditions, but the reaction of the thirteen in this group is quite understandable. Being in the university but being excluded from full participation naturally results in a negative reaction toward enjoyment of university life.

b. Seven Students Who Dislike All or Most of University Life

A second type of inferior adjustment is dislike of all or most of university life.

It is to be noted first that this group is only half as large as the preceding one; active dislike is less common than lack of enjoyment. Four of the seven cases are included in the discussion of students who enjoy little or none of their university life.

The qualifying examination average for those in the first poorly adjusted group, those who enjoy little of university life, is better than for the group which dislikes it. The former average is 51, the latter is 40.

Only one of the seven who dislike university life is doing outside work.

Of the four included among those who enjoy little of their school life, one was excessively homesick, one was living in a rooming house and earning money by going out to do housework, one was planning to study medicine but discovered her lack of even ordinary ability, and one was a sorority pledge who was having trouble with her school work, and was spending long hours in study with inadequate time for sleep.

Of the three additional cases, one was short of money, one was studying long hours and getting too little sleep, one was a sorority pledge and was having trouble with her school work.

c. Summary on Inferior Adjustment for Both Dissatisfied Groups

For those disliking university life as for those who enjoy little of it, there is a low level of ability. Some of these students are putting in long hours of study, and sacrificing social contacts and sleep, four are doing outside work, several have financial worries, two are sorority pledges who are failing to do average work, one is failing so that she must relinquish her plan of preparing for a profession. The situation involves lack of ability, isolation, and anxiety.

2. Superior Adjustment

In contrast to the two types of inferior adjustment we find three types of superior adjustment. These are (1) nineteen who rarely feel hurried, (2) forty-nine who are rarely worried, and (3) nineteen who consider their school work easy.

E. CONCLUSIONS ON REACTION TO UNIVERSITY LIFE

1. Inferior Adjustment

As health decreases, and worry, the feeling of being hurried, and difficulty of school work increase, the enjoyment of university life decreases and dislike of it increases.

2. Superior Adjustment

The opposite end of the scale is marked by excellent health, little feeling of being hurried, little worry, and easy school work.

3. Factors Involved in Adjustment

a. Ability and adjustment

An examination of the records of the students making these exceptional reactions reveals a consistent variation in natural ability as measured by the qualifying examination. Those students who show an inferior adjustment rank lower on the qualifying examination, than those who show a superior adjustment. The average percentile rank on the qualifying examination for each exceptional reaction follows:

Inferior Adjustment	Percentile Rank
Dislikes all or most of university life	40
Enjoy little or none of it	51
Superior Reaction	58
Rarely or never feel hurried	70
Rarely or never worry	81
School work easy	

Ability is not the only element that can be seen, but as it can be objectively measured, it is given first place in the enumeration of factors considered.

Another element that appears in a few cases is lack of sleep made necessary by long hours of study, or study combined with an effort to enter into the recreational life and activities of the campus. This really goes back to ability, for the brighter students can do better work with less study than can those of less ability.

b. Isolation and adjustment

The students recording inferior adjustment also suffer from social isolation produced in a variety of ways. It may be due to overwork, or the fact that the student does not live with

other students, or that she is temperamentally lacking in social adaptation.

c. Anxiety and adjustment

A third element entering into the inferior reactions is anxiety. This again has numerous causes, such as lack of money, the desire to do work of a sort that will make initiation into a sorority possible, the discovery that cherished plans must be given up because of lack of ability.

The degree of adjustment reported, then, depends upon natural ability, as measured by the qualifying examination, opportunity to participate in college life, upon anxiety or tranquility in regard to matters which hinge upon natural ability or upon money.

4. Satisfaction General

Freshmen seem to regard worry and being hurried and finding their school work difficult as the natural conditions of college life and do not allow them to interfere with their enjoyment of the situation: about 36 per cent of them report that they worry all or most of the time, about 69 per cent find their school work difficult, and 75 per cent are often or always hurried.

Yet, that the general level of satisfaction is high, is shown by the large percentage of cases that react to the elements indicating superior adjustment: 54 per cent report excellent health, 74 per cent enjoy all or most of university life, 84 per cent dislike little or none of it.

S.C.E.R.T., West Bengal

Date. 11. 4. 59

Acc. No. 1361



CHAPTER IV

FRESHMAN TIME BUDGET

The Time Budget

During the first week in December the freshman women were asked to coöperate on this problem by keeping a time budget for one week.

A. NUMBER OF BUDGETS

Their response was so generous that after discarding imperfect and incomplete records, one hundred seventy-six were available. This is fifty-two per cent of the class and includes representatives of each type of student.

B. DISTRIBUTION OF CASES

The distribution of cases is shown in Table 4.

TABLE 4
TIME BUDGET GROUPS

Group	Cases	Budgets	Per cent reporting
Freshman women	337	176	52
Dormitory	101	84	83
Living at home	92	41	45
Approved rooms	67	19	28
Sorority houses	40	16	40
Where work for support	37	16	43
Sorority members	129	60	47
Non-sorority members	208	116	56
Working for support	70	46	66
Not working	267	130	48

C. THE INFORMATION SECURED

The students were given a two-page form which enumerated probable items and contained blank spaces for the record of each day in the week. They were asked to record to the nearest quarter hour the time spent each day in each of the

specified ways and to add other items as necessary. The items asked for follow:

THE TIME BUDGET

I. Division of time

1. Got up
2. Went to bed
3. Length of day

II. Necessary duties

1. Meals
2. Sleep
3. Dressing, bathing, etc.
4. Care of wardrobe
5. Care of room
6. Shopping
7. Letter writing

III. Hours of school work

1. Physical education
2. Freshman lectures
3. Laboratory
4. Class room (exclusive of 1, 2, 3, above)
5. Study (time)
6. Study (where)

Check each day the place where you did half or more of your studying:

- a. Rooming place
- b. Other house
- c. Under sorority supervision
- d. Study hall or library

IV. Activities

1. Women's Association
2. Y. W. C. A.
3. Athletics (outside of required work)
4. Glee Club
5. Chorus (if not for credit)
6. Orchestra
7. Dramatics
8. Forensics
9. Literary Society
10. Departmental clubs
11. Class office or committee
12. Student government
13. Publications
14. Sorority
15. Specify others

V. Church work

1. Religious services
2. Meetings of organizations
3. Committee work
4. Choir, chorus, orchestra
5. Specify other work

VI. Social service

1. At hospital
2. Specify other work

VII. Recreation

1. Visiting (including "dates" not classified below)
2. Eating (not regular meals, but treats, spreads, etc.)
3. Walking
4. Riding
5. Reading
6. Playing and singing
7. Victrola and radio
8. Concerts
9. Lectures
10. Plays
11. Moving pictures
12. Teas
13. Bridge
14. Dancing at home
15. Dances or other parties
16. Specify others

VIII. Outside work

1. Hours each day
2. Type of work

IX. Helping at home

X. Illness

XI. Miscellaneous

1. Trips to campus
2. This report

D. DISTRIBUTION OF TIME FOR ONE WEEK

The information obtained from these budgets is summarized in Tables 5 and 6.

TABLE 5

AVERAGE TIME BUDGET OF 176 FRESHMAN WOMEN FOR ONE WEEK

Item	Time in Hours		
	Range	A. M.	S. D.
1. Sleep	29.5 — 72.5	56.0	6.2
2. Necessary duties	10.0 — 43.0	24.0	6.2
3. School work	22.8 — 96.0	48.1	11.3
4. Activities	.0 — 16.0	2.1	2.7
5. Church	.0 — 13.0	1.6	1.9
6. Social service	.0 — 7.8	.2	.8
7. Recreation	.0 — 68.0	24.2	10.6
8. Self-support	.0 — 45.0	4.8	9.6
9. Helping at home	.0 — 24.0	.9	3.2
10. Trips to campus	1.2 — 23.0	4.3	2.5
11. Keeping time budget	.0 — 7.5	2.0	.0

TABLE 6

TIME BUDGET ITEMS COMBINED

Item	Average hours per week	Per cent of 168 hours	Cumula- tive per cent
Sleep	56.0	33.3	33.3
Routine:			
Duties	24.0		
Trips	4.3		
Budget	2.0		
	30.3	18.5	51.8
School	48.1	28.6	80.4
Recreation	24.2	14.4	94.8
Self-support	4.8	2.8	97.6
Activities	2.1	1.2	98.2
Church	1.6		
Social service	.2	1.8	99.2
Helping at home	.9	.5	99.7

1. Sleep and Routine

The cumulative per cents in the last column of Table 6 show that one-third of the time is spent in sleep. Over half the time is spent in sleeping and performing the duties that must be attended to.

2. School Work

Of the remaining time 59 per cent is given to school work, and about half as much (29 per cent) to recreation. The

last twelve per cent of the available day is taken up by outside work, activities, and church work.

3. Church Work and Social Service

Seventy per cent of the class reported time given to church work or social service. About two-thirds of this time was devoted to religious services, and one-third to meetings of organizations, committees, chorus, and orchestra.

4. Activities

Thirteen types of activities were reported by forty-one per cent of the class. Half the time reported was devoted to sorority duties, and about eighteen per cent to athletic work. The other eleven items took less than one-third of the total time spent on activities.

5. Recreation

All the students but one reported time for recreation. The recreational interests form five groups for each of which the percentage of the total recreation time is indicated below.

Groups of Interests	Per cent of Recreation Time
Social interests	64.7
Athletic interests	10.5
Musical interests	8.3
Dramatic interests	5.7
Miscellaneous:	
Reading	
Lectures	8.4
Painting and sewing	1.4
	.6

6. Self-support

Forty-six of the 176 report time spent in working for self-support.

E. THE TIME BUDGET AS AN OBJECTIVE MEASURE

The information secured from the time budget is used as an objective measure of the differences that exist (1) among the five types of residence, (2) between the sorority and the non-sorority groups, and (3) between the working and the non-working groups.

1. The Six Items Compared

The six items used for purposes of comparison are: (1)

helping at home, (2) self support, (3) church and social service, (4) activities in school and town, (5) recreation, (6) school work.

2. The Difference Among the Residence Groups

The relative amount of time spent on each of these six items as well as the differences among the residence groups is shown in Table 7.

TABLE 7

SCORES OF FIVE RESIDENCE GROUPS ON SIX ITEMS OF THE TIME BUDGET

	Cases	Av. hours per week for 176
A. Six Items for 176 Freshmen		
I. Help at home	22	.9
II. Self-support	46	4.8
III. Church and social service	124	1.8
IV. Activities	83	2.1
V. Recreation	175	24.2
VI. School work	176	48.1
	Cases	Av. hours per week for group
B. Scores on Five Residence Groups		
I. Help at Home	22	
1. Living at home	22 of 41	3.9
2. At sorority houses		
3. In the dormitory		
4. In approved rooms		
5. Where working		
6. All	176	.9
II. Self-support	46	
1. Living at home	12 of 41	4.4
2. At sorority houses	1 of 16	1.1
3. In dormitory	11 of 84	1.6
4. In approved rooms	6 of 19	4.1
5. Where working	16 of 16	26.1
6. All	176	4.8
III. Church and Social Service	124	
1. Living at home	34 of 41	2.7
2. At sorority houses	9 of 16	1.0
3. In the dormitory	61 of 84	1.6
4. In approved rooms	11 of 19	1.6
5. Where working	9 of 16	1.4
6. All	176	1.8

IV. Activities	83	
1. Living at home	13 of 41	1.3
2. At sorority houses	14 of 16	4.3
3. In the dormitory	45 of 84	2.5
4. In approved rooms	8 of 19	1.9
5. Where working	3 of 16	.2
6. All	176	2.1
V. Recreation	175	
1. Living at home	41 of 41	17.5
2. At sorority houses	15 of 16	20.6
3. In the dormitory	84 of 84	32.3
4. In approved rooms	19 of 19	18.0
5. Where working	16 of 16	10.3
6. All	176	24.2
VI. School Work		
1. Living at home	41	45.9
2. At sorority houses	16	50.7
3. In the dormitory	84	49.1
4. In approved rooms	19	51.4
5. Where working	16	41.8
6. All	176	48.1

F. TIME AND SCHOOL PERFORMANCE

The significance of the time budget becomes apparent when it is considered in connection with the results which the students achieve. To bring out this relationship, four additional items were selected.

1. Four Additional Measures

The added items are (1) the high school average, (2) the score in the university qualifying examination, (3) the university first semester grade point average, and (4) the ratio of school work to registration.

By hours of school work is meant the hours spent in class plus the hours spent in preparation. If a student is registered for sixteen hours and reports forty-eight hours of school work, her ratio of school work to registration is three. Looking at it in another way, she spends thirty-two hours in the preparation of sixteen hours of work, an average of two hours of study for each hour of recitation.

2. The Class Average as a Standard

In order to compare the various groups for which the ten items selected above are available, the class average is used

as the standard, the group averages are expressed as deviations from the standard. These deviations are shown in Tables 8, 9, and 10.

G. FIVE RESIDENCE GROUPS

Table 8 shows the use of time and the school performance of the five residence groups. The groups are arranged in ascending order corresponding to first semester grade points: (1) freshmen living at home, (2) those in sorority houses, (3) those in the dormitory, (4) those in approved rooms, and (5) those living in a home where they work for self-support.

1. Freshmen Living at Home

The home group scores above the average on church work. If the time they spend in helping at home be added to the time they work for support, their work record becomes one and one-half times that of the class as a whole. In every other item the group falls below the class average. They carry a reduced schedule, put less time in study on each hour of school work than the average and have less ability. Their grade point average is lower than that of the other groups.

2. Freshmen in Sorority Houses

Of the sorority house group of sixteen, a greater proportion participate in activities than for any other residence group. They spend less time in church and recreation than the average. Although they report a high rate of study and rank first in qualifying examination, they make about average grades. Their high school record shows the same failure to do unusual work. The whole group of sixty sorority freshmen, however, rank higher on both high school and university grades than do the non-sorority freshmen.

3. Freshmen in Dormitory

As a group the dormitory freshmen do but little work for self-support. They have time to participate in church life and activities, and to take more recreation than any other residence group. In ability they are slightly above average. Their scholastic record for both high school and university is also above average.

TABLE 8

USE OF TIME AND SCHOOL PERFORMANCE

Five Residence Groups

I. Home: 41 Cases

Items	Average Score		Deviation from 176
	176	Group	
1. Help at home	.9	3.9	3.0
2. Self-support	4.8	4.4	— .4
3. Church	1.8	2.7	.9
4. Activities	2.1	1.3	— .8
5. Recreation	24.2	17.5	— 6.7
6. School work	48.1	45.9	— 2.2
7. School work ratio	3.2	3.1	— .1
8. High school average	88.1	87.7	— .4
9. Qualifying examination	54.9	48.8	— 6.1
10. Grade point average	2.1	2.0	— .1

II. Sorority Houses: 16 Cases

1. Help at home	.0	.0	.0
2. Self-support	4.8	1.1	— 3.7
3. Church	1.8	1.0	— .8
4. Activities	2.1	4.3	2.2
5. Recreation	24.2	20.6	— 3.6
6. School work	48.1	50.7	2.6
7. School work ratio	3.2	3.5	.3
8. High school average	88.1	86.7	— 1.4
9. Qualifying examination	54.9	61.4	6.5
10. Grade point average	2.1	2.2	.1

III. Dormitory: 84 Cases

1. Help at home	.0	.0	.0
2. Self-support	4.8	1.6	— 3.2
3. Church	1.8	1.6	— .2
4. Activities	2.1	2.5	.4
5. Recreation	24.2	32.3	8.1
6. School work	48.1	49.1	1.0
7. School work ratio	3.2	3.2	.0
8. High school average	88.1	88.5	.4
9. Qualifying examination	54.9	55.1	.2
10. Grade point average	2.1	2.2	.1

IV. Approved Rooms: 19 Cases

1. Help at home	.0	.0	.0
2. Self-support	4.8	4.1	— .7
3. Church	1.8	1.6	— .2
4. Activities	2.1	1.9	— .2
5. Recreation	24.2	18.0	— 6.2
6. School work	48.1	51.4	3.3
7. School work ratio	3.2	3.5	.3

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8. High school average	88.1	87.1	— 1.0
9. Qualifying examination	54.9	61.2	6.3
10. Grade point average	2.1	2.3	.2
V. Where Working: 16 Cases			
1. Help at home	.0	.0	.0
2. Self-support	4.8	26.1	21.3
3. Church	1.8	1.4	— .4
4. Activities	2.1	.2	— 1.9
5. Recreation	24.2	10.3	— 13.9
6. School work	48.1	41.8	— 6.3
7. School work ratio	3.2	3.1	— .1
8. High school average	88.1	89.5	1.4
9. Qualifying examination	54.9	56.2	1.3
10. Grade point average	2.1	2.3	.2

4. Freshmen in Approved Rooms

One-third of the freshmen living in approved rooms work for support. They occupy the middle rank in church attendance, activities, and recreation. As the group has ability and spends more time in study than the average its higher grade point average is to be expected.

5. Freshmen Living in Homes where They Work for Support

This group of workers makes a better record than the total group of working freshmen. Church attendance, activities, and recreation are low. Recreation is particularly low. They carry a reduced schedule of school work. Their study time is less than average, their ability is above average. Their scholastic record for both high school and university is high. Their high school record is the best made by any residence group.

H. Sorority and Non-Sorority Groups

Table 9 compares the use of time and the school performances of the sorority and the non-sorority groups.



TABLE 9
USE OF TIME AND SCHOOL PERFORMANCE
Sorority and Non-Sorority Groups

Items	Average Scores			Deviations from Ave-		
	Total	Sor.	Non-	rage of	Non-	Differ-
	176	60	116	176	176	ence in
	Cases	Cases	Cases	Sor.	sor.	Score
1. Help at home	.9	.2	1.2	-.7	.3	1.0
2. Self-support	4.8	2.3	6.0	-2.5	1.2	3.7
3. Church	1.8	1.6	1.9	-.2	.1	.3
4. Activities	2.1	4.7	.8	2.6	-1.3	3.9
5. Recreation	24.2	24.7	24.0	.5	-.2	.7
6. School work	48.1	51.5	45.9	3.4	2.2	5.6
7. School work ratio	3.2	3.4	3.1	.2	-.1	.3
8. High school average	88.1	88.7	88.0	.6	-.1	.7
9. Qualifying examination	54.9	60.4	47.3	5.5	-7.6	13.1
10. Grade point average	2.1	2.4	2.1	.3	.0	.3

1. The Sorority Group

The sorority group average is below that of the 176 students keeping the time budget, and even more below the average of the non-sorority group on helping at home, self-support, and church attendance. On the other seven items this group is above average. They spend about six times as many hours in activities as the non-sorority group, less than an hour more on recreation, six hours more on school work, and put an extra quarter of an hour preparation on each hour of class work. They made a high school average about one per cent higher, ranked about thirteen percentiles higher on the university qualifying examination, and made a grade point average .25 higher the first semester.

2. The Non-Sorority Group

The non-sorority group with its higher proportion of working members takes its working time from activities and recreation. The higher church attendance is due to the large number of local girls included and the large number who live in the dormitory where church going is stimulated by example, and by the efforts of upper classmen to enlist the freshman's interest. Their lower grade point average is probably largely due to the differences in ability.

I. WORKING AND NON-WORKING GROUPS

Table 10 compares the use of time and school performance of the working and the non-working groups.

TABLE 10
USE OF TIME AND SCHOOL PERFORMANCE
Working and Non-Working Groups

Items	Average Scores			Deviations from Average of 176		
	Total 176	Work 46	Non- work 130	Work	Non- work	Differ- ence in Scores
1. Help at home	.9	.8	.9	—1	.0	.1
2. Self-support	4.8	17.1	.0	12.3	—4.8	17.1
3. Church	1.8	2.3	1.7	.5	—1	.6
4. Activities	2.1	.9	2.5	—1.2	.4	1.6
5. Recreation	24.2	15.0	27.5	—9.2	3.3	12.5
6. School work	48.1	44.6	49.1	—3.5	1.0	4.5
7. School work ratio	3.2	3.2	3.2	.0	.0	.0
8. High school average	88.1	86.3	88.8	—1.8	.7	2.5
9. Qualifying examination	54.9	54.6	55.1	—3	.2	.5
10. Grade point average	2.1	2.1	2.3	.0	.2	.2

1. The Working Group

The working group live in all the five types of residence. About half of them live either at home or in the dormitory. This accounts for the church record being above average. The lower record on activities is due to the inclusion of a greater number of non-sorority girls in the working group. Recreation also is cut down to provide time for work. The reduced schedule which often accompanies outside work makes the school work record low. The amount of time spent per registered hour is practically the same. The high school average and the qualifying examination of the working group are below average. As was noted before the entire group makes a lower record than that part of the group working in a home for board and room. The grade point average of the latter group is the same as that of the non-working group.

2. The Non-Working Group

The non-working group is above average on helping at

home, activities, recreation, hours of school work, high school average, qualifying examination, and grade point average.

J. CONCLUSIONS BASED ON USE OF TIME AND
SCHOOL PERFORMANCE

Work for support reduces the freshman's registration and limits her social contacts. While it does not of itself decrease the quality of her work, in combination with inferior ability, it does decrease her grade point average.

The outstanding factor in scholastic success is mental ability. The contrasted groups, (1) sorority and non-sorority, (2) working and non-working, where a large number of cases is considered a unit, show that the scholastic record above the average is made by the group that has the higher average in the qualifying examination. This is shown by the record of the total sorority group and the total non-working group. Where the scholarship is highest (as for the total sorority group) the higher qualifying examination is supplemented by a higher rate of study.

176 s
e av

CHAPTER V.

SCHOLARSHIP

Several facts relative to scholarship have been discussed in the preceding chapters. These are reviewed before taking up the new phases of the subject.

A. SCHOLARSHIP AS INFLUENCED BY HIGH SCHOOL PREPARATION

The students enrolled from the larger high schools are less frequently from the upper quartile of the senior class than are students from smaller schools, and, they have a lower high school average. In spite of this fact, they do slightly better on the qualifying examination and on university grade point average than those from the smaller schools.

B. SCHOLARSHIP AND STUDY

As study is a factor in scholastic achievement, the conditions under which the freshmen do their studying have been considered. It is found that regardless of their place of residence, they do half or more than half of their studying at home. The number of roommates apparently is not a casual factor in determining time spent in study. Two-thirds of the students with no roommate live either at home or in a home where they work for support; two-thirds of those having one roommate live in the dormitory; one-half of those having two roommates live in sorority houses. The amount of outside work and the time spent in study are found in inverse proportion in these residence groups. Probably the increased study with an additional roommate is due, not to this fact, but to the fact that more leisure is found among the groups having the extra roommates.

C. SCHOLARSHIP AND PLACE OF RESIDENCE

The examination of rank in scholastic achievement in the various places of residence shows this rank to agree with

neither the scores in the qualifying examination nor the amount of study. The two groups which are included later in more comprehensive groups of similar nature are not typical of the larger groups. These are the groups in the sorority houses, and in the homes where the students work for board and room.

Table 11 includes only the first semester grade point average of the 176 freshmen who kept the time budget.

TABLE 11
SCHOLARSHIP AND PLACE OF RESIDENCE

Residence	Cases	G. Pt. Av.
1. Working in a home for board and room	16	2.27
2. Living in approved rooms	19	2.25
3. Living in the dormitory	84	2.18
4. Living in a sorority house	16	2.15
5. Living at home	41	1.95
Class	176	2.14

D. SCHOLARSHIP OF SORORITY AND NON-SORORITY GROUPS

The results in Table 12 are obtained from the budget keeping students and are for the first semester.

TABLE 12
SCHOLARSHIP OF SORORITY AND NON-SORORITY GROUPS

	Cases	G. Pt. Av.
Sorority group	60	2.35
Non-sorority group	116	2.13
Class	176	2.14

The achievement here corresponds to the difference in ability and study of the two groups. The sorority group is higher in both.

E. SCHOLARSHIP AND SELF-SUPPORT

Table 13 is based on the budget for the first semester.

TABLE 13
SCHOLARSHIP OF WORKING AND NON-WORKING GROUPS

	Cases	G. Pt. Av.
Working group	46	2.05
Non-working group	130	2.27
Class	176	2.14

Here the achievement corresponds to the ability of the two groups. The time spent in study is practically the same.

F. Comparative Scholarship

The scholarship of the freshman women for the first semester is compared to the scholarship of the women of the four classes of the Liberal Arts College. The freshmen fail to reach the record of the women in the four classes in either the sorority or the group averages. The grade point averages are given in Table 14.

TABLE 14

SCHOLARSHIP OF FRESHMAN WOMEN AND ALL LIBERAL ARTS WOMEN

Liberal Arts Women	Grade Point Average	
	Freshmen*	Four Years
Sorority	2.35	2.39
Non-sorority	2.13	
Working	2.05	
Non-working	2.27	
*The 176 who kept a time budget.		
Group		
Sorority	2.35	
Dormitory	2.18	
Group total		2.36
Non-group		
Living at home	1.95	
In rooming house	2.25	
Where work	2.27	
Non-group total		2.10
Total	2.14	

This concludes the review of facts which have been discovered in regard to scholarship.

The investigation continues in an examination of the records of fifty-three inefficient students.

G. FIFTY-THREE INEFFICIENT STUDENTS

1. Scholastic Record

Twenty students cancelled their registration.

Twelve did not register for the second semester. This was voluntary, but the group was low in ability and was making low grades.

Twenty-two made less than twenty-four hours in the two semesters and were therefore, still classified as freshmen. Ability low.

Fifteen were on probation during the year. Thirteen were put on probation at the end of the first semester and two others, the second semester. Of the first thirteen, four were dropped and one was again put on probation at the end of the second semester.

Eight were dropped because of poor scholarship. This does not include two who began the year with advanced standing and completed twenty-four hours the first semester, but who were dropped at the end of the year.

The total losses were as follows:

Cancellations first week	7
Voluntary cancellations during rest of the year	13
Not registered second semester—voluntary	12
Dropped for low scholarship	10

2. Causes of Inefficiency

a. Lack of ability

Fifty-three students manifesting various degrees of inefficiency have been presented. Of this number only one fourth have a percentile rank in the qualifying examination above fifty; the median falls in the third decile, the average in the fourth decile. The four groups differ in average percentile rank, those on probation falling sixteen percentiles below those who cancelled their registration. These differences are shown below:

	Cases	Ave. Per- centile Rank
(1) Voluntary cancellation after first week	12	40
(2) Not registered second semester (voluntary)	12	37
(3) Made less than 24 hours in two semesters	22	33
(4) On probation	15	24
(5) Dropped for low scholarship	8	31

The last three items include only 29 separate students. These with the 24 in the first two items make 53.

b. Lack of application

The amount of time given to study by these students is less than that given by successful students of similar ability. The time taken from study is in some cases given to outside work, in some cases to recreation.

c. Social background and personal characteristics

Uneducated foreign parentage and inadequate educational opportunity are combined in one instance. Uncontrolled impulses and an unsocial attitude developed in the home, coupled with an unstable nervous system, produce a second example of poor adjustment.

H. SCHOLARSHIP OF ALL FRESHMAN WOMEN

The irregularities in the class have been discussed, and now the scholarship of the class as a whole will be considered under three heads: (1) the Pearson coefficients of correlation found for high school grades, qualifying examination, and semester grades; (2) the coefficient of multiple correlation for grade point average and a combination of qualifying examination and time spent on school work; (3) factors other than ability and study which enter into scholarship.

1. The Pearson Coefficient of Correlation

a. Questions raised

There are several questions to be taken up in regard to this correlation:

How do high school grades correlate with the university qualifying examination, and with university grades?

How does the qualifying examination correlate with high school grades and with first and second semester grades?

How do first semester grades correlate with high school grades, with the qualifying examination, and with second semester grades?

How do second semester grades correlate with the qualifying examination and with first semester grades?

The correlations suggested here are given in Table 15. The number of cases is indicated, as not all records are available for every student. The Pearson r and the PE of r are given.

TABLE 15
PEARSON COEFFICIENTS OF CORRELATION

Items	Cases	<i>r</i>	PE of <i>r</i>
1. High school grades and qualifying examination	280	.51	.03
2. High school grades and first semester grades	280	.57	.03
3. First semester grades and qualifying examination	280	.65	.02
4. Second semester grades and qualifying examination	265	.66	.02
5. Second semester grades and first semester grades	265	.78	.02

b. Discussion of the correlations obtained

The cases used for correlations the first semester are the 280 used in discussing the high school grades, the position in senior class, and the principal's judgment as to success in college. At the end of the second semester 265 cases remained of the 280 used for the first semester.

The correlation (1) for high school grades and the qualifying examination is slightly less than for (2) high school grades and university grades.

For (1) $r = .51 \pm .03$

(2) $r = .57 \pm .03$

This comparison indicates that the giving of grades in the high school has more in common with the giving of grades in the university than it has with the impersonal objective qualifying examination.

The correlation for (1) qualifying examination and high school grades is less than for (3) qualifying examination and first semester grades, which in turn is less than the correlation for (4) qualifying examination and second semester grades.

For (1) $r = .51 \pm .03$

(3) $r = .65 \pm .02$

(4) $r = .66 \pm .02$

Here the qualifying examination correlates higher with first semester university grades than with the high school grades. The university situation, then, more nearly approaches

the impersonal situation presented in the qualifying examination. By the end of the year the survivors have adapted themselves somewhat to the impersonal rôle which is assigned them, and the correlation between the qualifying examination and the second semester grades comes up slightly.

The correlation for (2) first semester grades and high school grades is less than for (3) first semester grades and the qualifying examination, which in turn is less than (5) first semester grades and second semester grades.

For (2) $r = .57 \pm .03$

(3) $r = .65 \pm .02$

(5) $r = .78 \pm .02$

Here there is greater agreement between first semester grades and second semester grades than between first semester grades and the qualifying examination. This is due to the greater similarity of the conditions in the first situation.

The correlation for (4) second semester grades and qualifying examination is less than for (5) second semester grades and first semester grades.

For (4) $r = .66 \pm .02$

(5) $r = .78 \pm .02$

The agreement between two sets of grades made under rather similar conditions is greater than between either set of grades and the qualifying examination.

c. The agreement between qualifying examination and scholastic performance

The correlation between qualifying examination and scholastic performance is further demonstrated in Tables 16 and 17 in which the two sets of measures are presented.

In Table 16 there are only two exceptions to the general agreement of the two measures. These occur in the decile 40-49, and the decile 0-9 for both semesters; in both cases the grade point average is higher than the one above it.

In Table 17 the shift in arrangement smooths out the irregularities in the first semester, but reveals others in the second semester scores, where three students making 4.00 have a percentile average lower than the group below them

and where four students making a grade point average -.50 to 0 have a percentile average of 40.7, in the qualifying examination, which is higher than any other grade group below 2.00.

TABLE 16
THE VARIATION IN GRADE POINT AVERAGE CORRESPONDING TO THE
QUALIFYING EXAMINATION DECILE

Deciles	Gr. Pt. Average		Cases	
	1st sem.	2nd sem.	1st sem.	2nd sem.
90-99	3.10	3.07	27	27
80-89	2.74	2.71	35	35
70-79	2.45	2.54	37	35
60-69	2.16	2.13	36	34
50-59	1.90	2.03	37	36
40-49	2.04	2.17	26	26
30-39	1.67	1.79	33	31
20-29	1.57	1.78	37	32
10-19	1.06	1.17	30	28
0-9	1.22	1.34	15	13
			<hr/> 313	<hr/> 297

TABLE 17
THE VARIATION IN PERCENTILE RANK IN THE QUALIFYING EXAMINATION CORRESPOND-
ING TO GRADE AVERAGES

Gr. Pt. Average	Percentile Rank		Cases	
	1st sem.	2nd sem.	1st sem.	2nd sem.
4.00	95.0	85.6	1	3
3.50-3.99	85.9	90.1	17	15
3.00-3.49	83.6	81.3	25	27
2.50-2.99	66.7	64.7	47	54
2.00-2.49	53.4	52.4	100	85
1.50-1.99	41.0	36.5	64	58
1.00-1.49	31.6	35.5	24	33
.50-.99	26.6	34.4	18	10
.00-.49	26.5	26.3	14	6
-.50-.00	16.0	40.7	3	4
-1.00-.51		15.0		1
-1.50-1.01		16.0		1
-2.00-1.51	16.0		1	
			<hr/> 314	<hr/> 297

2. Coefficient of Multiple Correlation

a. Reason for Computation

The Pearson coefficient of correlation between qualifying examination and university grades secured above does not take into account the fact that the amount of time devoted to study differs for individuals and that this difference may be a factor in determining grades.

In considering this point, the coefficient of multiple correlation, R , is calculated for (1) first semester grade points, and the combined effect of (2) qualifying examination and (3) the average time spent in school work for each hour for which the student is registered.

The time spent in school work includes time spent in class plus time spent in preparation. This information was secured from the time budget kept by 176 students for one week. Only 169 of these cases could be used, since for some of them there was no score in the qualifying examination.

The results obtained from the calculation of Multiple R are given in Table 18.

TABLE 18

CALCULATION OF MULTIPLE R

I. Coefficients of Correlation		
(1) Grade point average	(2) Qualifying examination	(3) Time spent per reg. hour
$M_1 = 2.225$	$M_2 = 55.26$	$M_3 = 3.236$
$\sigma_1 = .902$	$\sigma_2 = 27.11$	$\sigma_3 = .768$
$r_{12} = .687$	$r_{13} = .003$	$r_{23} = -.167$
II. Partial Coefficients of Correlation		
$r_{12.3} = .697$		
$r_{13.2} = .164$		
III. Partial Sigmas		
$\sigma_{1.23} = .635$		
$\sigma_{2.13} = 20.863$		
$\sigma_{3.12} = .746$		
IV. Regression Equations		
(1) Deviation form		
$x_1 = .029 x_2 + .139 x_3$		
(2) Score form		
$X_1 = .029 X_2 + .139 X_3 + .173$		
V. Standard Error of Estimate		
$\sigma(\text{est. } X_1) = \sigma_{1.23} = .635$		
$PE(\text{est. } X_1) = .428$		
VI. Multiple R		
$R_{1.23} = .710$		

b. Use of Regression Equation

The use of the regression equation may be illustrated by considering a few actual cases. Two examples of superior ability and two of inferior ability are used.

(1) Case Number 5 (Superior ability; much study)

X_1 = Estimated grade point average

X_2 = 98 percentile rank in qualifying examination

X_3 = 4 hours of school work for each hour of registration

$X_1 = .029 X_2 + .139 X_3 + .173$

$X_1 = .029 (98) + .139 (4) + .173$

$X_1 = 3.57$

PE (est. X_1) = .428 or .43

Then the chances are even that the actual score lies between $3.57 \pm .43$, or between 4.00 and 3.14. The actual score is 2.81.

(2) Case Number 175 (Superior ability; average study)

X_1 = Estimated grade point average

X_2 = 98 percentile rank in qualifying examination

X_3 = 2.8 hours of school work for each hour of registration

$X_1 = .029 (98) + .139 (2.8) + .173$

$X_1 = 3.40$

$X_1 \pm \text{PE (est. } X_1) = 3.40 \pm .43$

Then, the chances are even that the actual score lies between $3.40 \pm .43$, or between 3.83 and 2.97. The actual score is 3.50.

It is to be noted that Number 5 reports four hours of work for each hour of work for which she is registered, which means three hours of study to one of recitation. Number 175 reports 2.8 hours, which is 1.8 hours of study for one of recitation.

Number 5 makes a lower grade point average than she should. Number 175 falls within the limits set by the estimate and the probable error of estimate.

According to the estimated scores, Number 5's score of 3.57 is only .17 higher than that of 175, although Number 5 spends an extra hour and a quarter in study.

(3) Case Number 73 (Inferior ability; much study)

X_1 = Estimated grade point average

X_2 = 6 percentile rank in qualifying examination

X_3 = 6 hours of school work for each hour of registration

$X_1 = .029 (6) + .139 (6) + .173$

$X_1 = 1.18$

$X_1 \pm \text{PE (est. } X_1) = 1.18 \pm .43$

Then the chances are even that the actual score falls between $1.18 \pm .43$, or between 1.61 and .75. The actual score is 1.56.

(4) Case Number 118 (Inferior ability; little study)

X_1 = Estimated grade point average

X_2 = 6 percentile rank in qualifying examination

X_3 = 2.2 hours of school work for each hour of registration

$X_1 = .029 (6) + .139 (2.2) + .173$

$X_1 = .602$

$X_1 \pm PE \text{ (est. } X_1) = .60 \pm .43$

Then chances are even that the actual score falls between 1.03 and .17. The actual score is -0.25 .

Notice that Number 73, by putting five hours of study on a recitation makes a score within the limits set by the estimated score and the probable error of estimate, while Number 118, who puts an hour and a quarter on a recitation, fails to make even the lowest score within the limit set by the probable error.

These examples of inferior ability indicate that only by long hours of study can such a student make a record on which she can eventually get a degree.

3. Other Factors Affecting Scholarship

When we consider the conditions that are found in connection with inefficient work, we usually find lack of ability. When lack of ability is combined with lack of study, failure is certain.

Among the other factors which enter into scholastic performance are stability or instability, self-confidence or timidity, anxiety or serenity, physical disability or physical fitness.

A serious problem in regard to scholarship rises for the working student. If she has average or poor ability, she must sacrifice social contacts to secure time for extra study. Her time budget shows that, for the most part, she makes the sacrifice of her social life. In spite of this the scholarship of the seventy working freshmen is slightly lower than that of the class as a whole.

CHAPTER VI

SEVENTY WORKING FRESHMEN

A. GENERAL SITUATION

During the first semester seventy freshman women were working for self-support. They lived in each of the types of residence. Forty-six of them kept a time budget for a week so that a knowledge of how they spent their time is available. This budget was kept for each type of residence.

Residence	Students	Budget by
In a home where she worked for support	36	16
At home	14	12
Dormitory	11	11
Approved rooms	8	6
Sorority house	1	1
Total	70	46

B. THE AVERAGE WORKING FRESHMAN

Age	18.4 years	
High school average		87.4 \pm 4.9*
University qualifying examination		51.2 \pm 27.1
Registration:	Semester hours	Grade point average
First semester	13.69 \pm 2.23*	1.99 \pm .95*
Second semester	14.17 \pm 1.73	2.19 \pm .90
Self-support: Hours per week		22.56 \pm 10.41*
Time Budget		Hours per week
Work at home		.84
Church and social service		2.30
Activities		.86
Recreation		15.01
School work		44.59
Ratio of school work to registration		3.21

*A.M. and S.D.

C. THE WORKING GROUP

The age and high school average of the seventy working freshman women is practically the same as for the whole class.

The average percentile rank in the qualifying examination for the 46 who kept the time budget, is one-half of a per-

centile lower than the average for the 130 non-working freshmen.

As a group the working freshmen register for fewer hours than the rest of the class, but 46 per cent of them carried 16 hours for the first semester, as did 44 per cent the second semester.

The average number of hours per week spent in outside work by the whole group of 70 was 22.6. This is 5.5 hours more than was reported by the workers who kept the time budget.

The budget for 176 of the class is shown in Table 19. The reports of the 46 workers and the 130 non-workers are compared.

TABLE 19
COMPARATIVE TIME BUDGETS: CLASS, NON-WORKERS, WORKERS

	Kept budget one week					
	Class		Non-workers		Workers	
	176		130		46	
	Items	Totals	Items	Totals	Items	Totals
Sleep		56.0		56.6		54.4
Routine		30.3		29.7		33.0
School work		48.1		49.1		44.6
Registered hours	15.21		15.59		13.89	
Study per hour	2.16		2.15		2.21	
Outside work		5.6		.9		17.9
Self-support	4.7		.0		17.1	
Help at home	.9		.9		.8	
Social contacts		28.1		31.7		18.2
Church	1.8		1.7		2.3	
Activities	2.1		2.5		.9	
Recreation	24.2		27.5		15.0	
Summary of Totals						
Sleep			56.0		56.6	54.4
Routine			30.3		29.7	33.0
School work			48.1		49.1	44.6
Outside work			5.6		.9	17.9
Social contacts			28.1		31.7	18.2

The record of the workers is higher than that of the non-workers on three items, and lower on four items. These items are compared below.

Working group above average of non-working group:

Routine duties	3.3 hours
Self-support	17.1 hours
Church	.6 hours
	<hr/>
	21.0

Working group below average of non-working group:

Sleep	2.2 hours
School work	4.5 hours
Activities	1.6 hours
Recreation	12.5 hours
	<hr/>
	20.8

D. TYPES OF WORK

Thirteen types of work are reported, and the number of freshmen engaged in each kind is given. Thirty-eight did housework, seven cared for children. That is, sixty-four per cent of them were in some sort of domestic service. Six, or eight and a half per cent, worked in a cafeteria or tea room. The remaining thirty-eight and a half per cent were engaged in a variety of occupations.

Kinds of Work and Number Engaged in Each

Housework	38
Care of children	7
Cafeteria, tea room	6
Stenographic work	6
Clerical work	4
Clerking in store	2
Telephone operating	2
Working in public library	1
Retouching negatives and tinting photographs	1
Drawing	1
Teaching music	1
Playing piano or pipe organ	2
Preparing church bulletin	1
Not stated	1
	<hr/>
Total	73
Doing two types of work	3
	<hr/>
Total different cases	70

E. TIME SPENT IN OUTSIDE WORK

The 70 freshmen who worked for support spent from two to forty-five hours a week in this way. Table 20 gives the working schedule and the frequency of occurrence of each schedule.

TABLE 20
FREQUENCY OF OCCURRENCE OF WORKING SCHEDULES

Hours per Week	Freshmen Working	Hours per Week	Freshmen Working
2	1	21	1
3	4	22	1
4	2	25	3
6	4	26	5
9	1	27	2
10	1	28	15
11	1	29	2
12	2	30	2
14	1	33	1
15	2	34	1
16	2	35	1
17	1	36	1
18	2	37	2
19	2	38	1
20	5	45	1
Median: 25 hour schedule			
Q ₁ : 15 hour schedule			
Q ₃ : 28 hour schedule			

Table 20 shows the percentage of working freshmen employed for various periods of time to be as follows:

Weekly Working Schedule	Per cent of 70 Workers
10 hours or over	83
15 hours or over	75
20 hours or over	63
25 hours or over	53
30 hours or over	14

F. SCHOLARSHIP OF WORKING FRESHMEN

1. Passing Work

Eighty per cent of the working freshman women had no non-passing marks.

2. Non-passing work

Twenty per cent of the working group made non-passing marks in some of their work. One left school in December and five others did not register the second semester.

3. Ability, registration, and failures on non-passing groups

The fourteen working freshmen who have non-passing marks have an average percentile rank in the qualifying examination of 27, only a little over half the average of the whole working group. They worked an average of 17.3 hours a week, which is about five hours a week below the average for the working group of 70.

They were registered for an average of 14.3 hours the first semester. Six dropped out and the remaining eight were registered for 12.6 hours the second semester.

The first semester they failed to pass 30 per cent of their work; the second semester those who remained failed on 15 per cent.

G. INFERIOR ABILITY AND OUTSIDE WORK

Two facts are found in regard to the worker of inferior ability:

First, average school work is rare for workers with a percentile rank below 40 in the qualifying examination. See Table 21.

Second, workers with a percentile rank below 40 have less chance than non-workers of equal ability to make average grades or to make an average permitting graduation. See Tables 22 and 23.

Table 21 shows the percentile rank and first semester grade point average of 69 working freshmen. (One has no percentile rank.)

TABLE 21

ABILITY AND GRADES OF WORKERS

Number of workers	Percentile rank	Frequency of grade point average	
		2.00 or over	Below 2.00
43	40 or over	34	9
26	Less than 40	2*	24
—		—	—
69		36	33

*One of the two students having a grade point average of 2.00 the first semester, fell below this mark the second semester.

Of 36 working students making a grade point average of 2.00 or over, 94 per cent the first semester, and 97 per cent the second semester, had a percentile rank in the qualifying examination of 40 or over.

For the class as a whole a percentile rank of 40 is the dividing line between average grades and grades below average. See Table 16.

Tables 22 and 23 compare the ability and scholarship of workers and of the class as a whole.

TABLE 22

COMPARATIVE ABILITY OF WORKING GROUP AND CLASS

	Class	Working Group
Number of students	337	70
Students with percentile rank below 40	118	26
Per cent of group below 40	35	37

TABLE 23

INFERIOR ABILITY AND COMPARATIVE GRADES OF WORKING GROUP AND CLASS
(Percentile rank below 40)

Grade point average	Per cent of group		Deviations of worker from class
	Class	Workers	
2.00 or over	22.8	7.7	— 15.1
1.50 to 1.99	29.6	23.0	— 6.6
Below 1.50	47.6	69.3	21.7

The number of workers making average grades (2.00) is 15.1 per cent less than for the class as a whole. The number making grades below a point permitting graduation (1.50) is 21.7 per cent greater.

H. REACTION TO UNIVERSITY LIFE

It has been shown how the university life of the working group differs from that of the non-working group. It is interesting to note where their reactions to it differ. Each of the seventy girls took the reaction test. Their reactions are compared with those of the whole class in Table 24.

TABLE 24
REACTIONS OF WORKING FRESHMEN

	Number	Per cent of 70	Per cent in class	Deviation from class average
School work				
Easy	4	5.7	5.9	— .2
Not difficult	26	37.1	25.3	11.8
Difficult	40	57.1	28.8	— 11.7
Time				
Rarely hurried	4	5.7	5.9	— .2
Just enough time	13	18.6	19.1	— .5
Often hurried	53	75.7	75.0	— .7
Enjoy				
All or most	48	68.5	74.3	— 5.8
Some	17	24.3	21.5	— 2.8
Little or none	5	7.2	4.0	— 3.2
Dislike				
Little or none	57	81.4	84.6	— 3.2
Some	12	17.1	13.1	— 4.0
All or most	1	1.4	2.1	— .7
Worry				
Rarely or never	14	20.0	15.2	— 4.8
Occasionally	29	41.4	48.7	— 7.3
Often or always	27	38.6	35.8	— 2.8
Health				
Excellent	40	57.1	54.0	— 3.1
Good	26	37.1	39.7	— 2.6
Often or always ill	4	5.7	6.2	— .5

I. SUMMARY OF REACTIONS

Altogether the working group report a higher level of health than the non-working group, they report less worry, and only a little more pressure for time. The percentage that enjoy university life is less than for the non-working group, the percentage that dislike it is higher. This is easy to under-

stand: they are doing unattractive outside work for the most part, and are excluded from much that constitutes university life.

J. CONCLUSIONS ON SEVENTY WORKING FRESHMEN

1. Scholarship

There is some difference in the scholastic achievement of the working freshmen and the non-working freshmen. The 176 students who kept a time budget made a grade point average of 2.14. The working budget keepers made 2.05, the non-workers made 2.27. The entire 70 workers did slightly better than the budget keeping workers: their grade point average was 2.09 for the year.

Eighty per cent of the working group have no non-passing marks. Those who are failing differ from the rest of the workers, not so much in amount of outside work or in their use of time, as in ability.

2. Ability

The working group falls slightly below the class as a whole in ability. The time budget students who work make an average percentile rank on the qualifying examination of 54.6, the non-workers make 55.1. The seventy workers make an average percentile rank of 52.0. The failing workers drop down to 27, only slightly more than half the average for the group.

As is indicated above, outside work does not interfere particularly with the quality of school work except for students of inferior ability. It does, however, reduce the student's registration somewhat, and it produces a situation in which she is excluded from participation in campus activities and personal social contacts.

3. Reactions to University Life

The reactions of the working freshman to university life when compared to the reactions of the class as a whole show noticeable differences. The workers report better health, less worry, only a little more pressure for time. They report their school work as easier than do the whole class. On the other hand they enjoy university life less and a higher percentage dislike it. The last two reactions are natural in view of the

fact that most of them are doing unattractive outside work, and that they are excluded by lack of time from full participation in the campus life.

K. GUIDANCE OF WORKING FRESHMEN

How much outside work can a freshman do and still make an average record on school work?

The outstanding factor in scholarship for the class as a whole is shown to be mental-educational ability as measured by the university qualifying examination. The workers differ from the non-workers in use of time. They report less time spent in sleep, school work, activities, and recreation. The time saved on these items is used in routine duties, church attendance, and outside work.

In order to advise working freshmen regarding a suitable schedule the following conditions should be considered.

1. Sleep

It is obvious that sleep should not be curtailed if the student is to keep in proper physical and mental condition. The class average of eight hours may be regarded as a suitable allowance for this item.

2. Routine

Workers report about 31 hours a week spent on routine duties. After allowing 56 hours for sleep and 31 hours for routine, only 81 hours of the week are available for school work, outside work, and social contacts.

3. School Work

The number of hours for which the worker may register depends upon her ability and the amount of time she can devote to study.

If we assume the desirability of planning to secure at least average work, a grade point average of 2.00 is the minimum acceptable grade.

Having chosen a minimum grade point average, the regression equation can be used to predict the time required by students of various degrees of ability to reach this standard.

4. Self-support

The amount the student must contribute to her expenses as well as her ability and interests must be considered in determining her working schedule.

5. Social Contacts

The social side of the student's life is curtailed to secure the time which is to be devoted to outside work. It includes time given to church attendance, activities, and recreation. The average report made by 46 workers in this class gives about eighteen hours a week to social contacts. (See Table 19.) In estimating working schedules this average for social contacts is used.

L. PREDICTION OF TIME REQUIRED FOR SCHOOL WORK

The regression equation used for the prediction of time required to secure a grade point average of 2.00 by a student of known percentile rank is given below. In using these predicted values it should be recognized that increasing the time spent in study does not insure proportionate increase in the grade point average beyond a limited range. As the student approaches the limit set by his ability his rate of improvement decreases regardless of the extra time spent in study.

1. The Regression Equation

The data used in calculating Multiple R are given in Table 18. These data are repeated in Table 25 where they are used to find the regression equation for the prediction of time spent in school work.

TABLE 25
REGRESSION EQUATION FOR PREDICTION OF TIME

I. Coefficients of Correlation		
(1) Grade point average	(2) Qualifying examination	(3) Time spent per registered hour
$M_1 = 2.225$	$M_2 = 55.26$	$M_3 = 3.236$
$\sigma_1 = .902$	$\sigma_2 = 27.11$	$\sigma_3 = .768$
$r_{12} = .687$	$r_{13} = .003$	$r_{23} = -.167$
II. Partial Coefficients of Correlation		
$r_{13.2} = .164$		
$r_{23.1} = -.233$		
III. Partial Sigmas		
$\sigma_{1.23} = .635$		
$\sigma_{2.13} = 20.863$		
$\sigma_{3.12} = .746$		

IV. Regression Equations

(1) Deviation form

$$x_3 = .193 x_1 - .008 x_2$$

(2) Score form

$$X_3 = .193 X_1 - .008 X_2 + 3.265$$

V. Standard Error of Estimate

$$\sigma(\text{est } X_3) = \sigma_{3.12} = .746$$

$$\text{PE}(\text{est } X_3) = .50$$

2. Prediction of Time

When X_1 = Grade point average of 2.00

When X_2 = Percentile rank in qualifying examination

When X_3 = Time per registered hour

Substitute the values of X_1 and X_2 in the regression equation.

$$X_3 = .193 X_1 - .008 X_2 + 3.265$$

The results are given in Table 26.

TABLE 26
TIME PREDICTED BY REGRESSION EQUATION

X_1	X_2	X_3	Study per registered hour
2.00	90	2.93	1.93
2.00	80	3.01	2.01
2.00	70	3.09	2.09
2.00	60	3.17	2.17
2.00	50	3.25	2.25
2.00	40	3.33	2.33

M. SCHEDULES FOR WORKING FRESHMEN

In the light of this study the following general schedule may be planned for the working freshman at the State University of Iowa.

1. General Schedule

Item	Hours per Week
Sleep	56
Routine	31
Remaining items	81
School work	
Outside work	
Social contacts	
Total	168

2. The Variable Items

The variable items included in the 81 hours per week may be adjusted within the limits suggested in Table 27.

TABLE 27

ADJUSTABLE SCHEDULES

 X_1 = Grade point average of 2.00 X_2 = Percentile rank in qualifying examination X_3 = Time per registered hour (from Table 26)

X_2	X_3	School work		Remainder of 81 hours		
		Regular hours	Hours per week	Remainder	Outside work	Contacts Social
(1)		(2)	(3)		(4)	(5)
90	2.93	16	47	34	16	18
		14	41	40	22	18
		12	35	46	28	18
		10	29	52	34	18
		8	23	58	40	18
80	3.01	16	48	33	15	18
		14	42	39	21	18
		12	36	45	27	18
		10	30	51	33	18
		8	24	57	39	18
70	3.09	16	49	32	14	18
		14	43	38	20	18
		12	37	44	26	18
		10	31	50	32	18
		8	25	56	38	18
60	3.17	16	51	30	12	18
		14	44	37	19	18
		12	38	43	25	18
		10	32	49	31	18
		8	25	56	38	18
50	3.25	16	52	29	11	18
		14	46	35	17	18
		12	39	42	24	18
		10	33	48	30	18
		8	26	55	37	18
40	3.33	16	53	28	10	18
		14	47	34	16	18
		12	40	41	23	18
		10	33	48	30	18
		8	27	54	36	18

A schedule may be selected from Table 27 by using the five numbered columns.

Examples

I

A freshman having a percentile rank of 90 (1) can register for 16 hours of work (2) and by putting 47 hours a week on school work (3) can expect to make a grade point average of 2.00. In the remaining 34 hours a week she can do 16 hours of outside work (4) and have 18 hours for social contacts (5).

II

- (1) Percentile rank, 40
- (2) Registration, 16 semester hours
- (3) School work per week, 53 hours
- (4) Outside work per week 10 hours
- (5) Social contacts (worker's average) 18 hours

III

- (1) Percentile rank, 90
- (2) Registration, 12 semester hours
- (3) School work per week, 35 hours
- (4) Outside work per week, 28 hours*
- (5) Social contacts, 18 hours

IV

- (1) Percentile rank, 40
- (2) Registration, 10 semester hours
- (3) School work per week, 33 hours
- (4) Outside work per week, 30 hours*
- (5) Social contacts, 18 hours

Examination of Table 27 indicates that the freshman having a percentile rank of 60 or over can probably work for her room and board and register for 12 semester hours, but that with a percentile rank of 40 or 50 she should probably register for 10 semester hours.

*Students working in a family for board and room are expected to work 28 hours a week.

N. WORKING FRESHMEN OF INFERIOR ABILITY

Schedules are not estimated for students with a percentile rank below 40. As has been shown in this discussion a grade point average of 2.00 was made by only two of the twenty-six workers with a percentile rank below 40. (Table 21)

An average scholastic record with this degree of ability is 15 per cent less frequent among the workers than among the class as a whole. (Table 23)

Further, less than one-third (31.7 per cent) of the working freshmen with a percentile rank below 40 made a grade point average of 1.50 or above. This is the minimum average which permits graduation. For the class as a whole over half (52.4 per cent) reached this minimum.

In view of the low scholastic record among working freshmen of inferior ability, any schedule including outside work should be avoided for them if possible. When work is unavoidable, it should be recognized that such freshmen will probably not be able to make average grades and that their outside work is reducing their chance of graduating.

CHAPTER VII

SUMMARY AND CONCLUSIONS

A. PURPOSE OF THE STUDY

The purpose of this investigation is to examine the factors which entered into the scholastic achievement of the freshman women at the State University of Iowa in 1927-1928.

Since scholarship is the main interest, the incidental findings are merely mentioned. Among these are the reactions of the freshmen to university life and their use of time.

B. THE REACTION TEST

The reaction test indicates that in cases of poor adjustment, where enjoyment of university life is slight and where much of it is disliked, the accompanying conditions are worry, lack of time, and difficulty with school work. In the case of studies it develops that groups of poor ability report a greater degree of maladjustment, but for the most part moderate or superior adjustment is reported.

C. THE TIME BUDGET

The time budget is particularly significant in the case of the seventy freshman women who are working for self-support. The only items other than outside work, on which their average is greater than that of the non-working students are church attendance and routine duties. The sum of the amounts by which these three averages exceed the non-working average is 21 hours a week for the 46 workers who kept the time budget. Their averages fall below those of the non-workers on sleep, activities, recreation, and school work by 20.8 hours a week. Consideration of this condition makes it evident that freshman women who worked for support secured the time for it by carrying a reduced schedule of school work, by giving up much that constitutes college life, and by curtailing their hours of sleep.

D. SCHOLARSHIP

The conclusions regarding scholarship are summarized under three headings; ability, time spent in study, and unmeasured factors.

1. The outstanding factor in scholastic performance is ability
 - a. Though size of high school has a low positive correlation with university work, the correlation is less than for average grades in high school
 - b. Students from the several types of high schools make unlike average scores on the qualifying examination, and their grade point averages follow the same rank
 - c. Groups in the university fall into the rank suggested by their qualifying examination
 - (1) The sorority group is higher than the non-sorority group in both qualifying examination and grade point average
 - (2) The non-working group is higher in both qualifying examination and grade point average than the working group
 - d. Students doing poor university work usually have poor ability

	Percentile rank
(1) Qualifying examination average for those who cancelled registration:	
First semester, after first week	39
Second semester	41
(2) Qualifying examination for those who voluntarily did not register second semester	34
(3) Those making less than twenty-four hours of credit in two semesters have a qualifying examination average of	33
(4) Students on probation the second semester have a qualifying examination average of	24
(5) Dropped for poor scholarship	31
e. Correlation: the correlation for qualifying examination average and grade point average is .69	

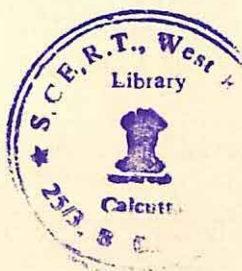
2. Another measurable factor in scholastic performance is

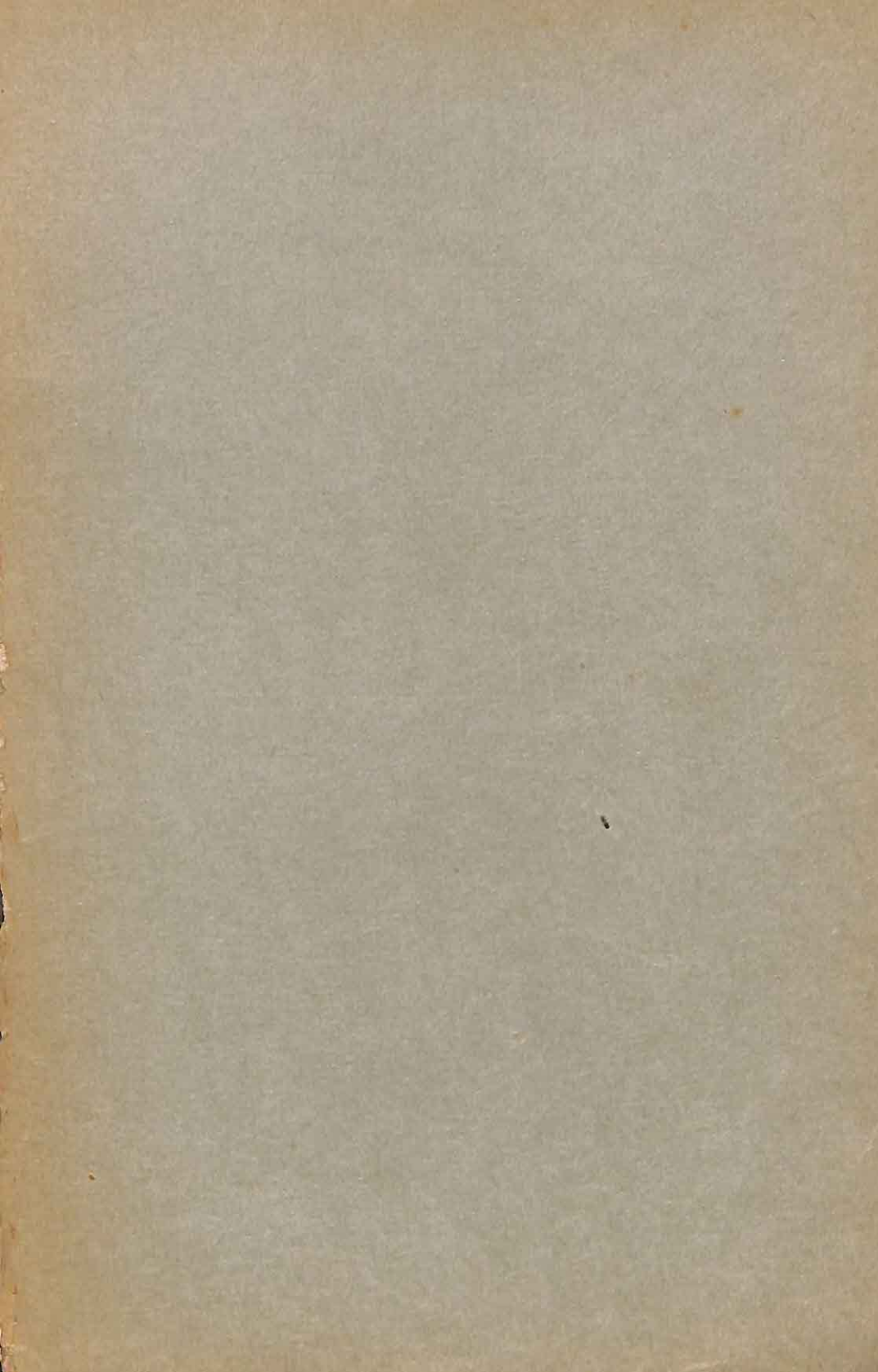
time spent in study

- a. The correlation for grade point average and time spent on school work is only .003
 - b. The correlation for qualifying examination and time spent on school work is $-.167$
 - c. When multiple R is found for grade point average and the combined effect of qualifying examination and time spent on school work, the result is somewhat higher than for the correlation between grade points and qualifying examination alone
 - d. These correlations indicate that the students with superior ability study the least. This factor is partly responsible for the low zero-order correlation between grade points and time spent on school work
3. Factors in connection with poor work, observed but not measured, are:
- a. Poor preparation
 - b. Poor use of time
 - c. Overwork
 - d. Anxiety about money
 - e. Poor health
 - f. Timidity, lack of self-confidence
 - g. Indifference
 - h. Headstrong disregard of obligations

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